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/Monika J Hussell/

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

Appellant: Delcomyn, C. et al. : Paper No.:
Serial No.: 10/693,194 : Group Art Unit: 1751
Filing Date: October 23, 2003 : Examiner: John R. Hardee
For: **Universal Halide-Enhanced Decontaminating Formulation**

REPLY BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The present Reply Brief is submitted in response to the Examiner's Answer dated August 24, 2007.

I. WILEY FAILS TO TEACH OR FAIRLY SUGGEST THE SPECIFIC COMPOSITIONS OF THE PRESENT INVENTION, AND TEACHES AWAY FROM A SELECTION OF INGREDIENTS CAPABLE OF GENERATING A HYPOHALITE IN ACCORDANCE WITH THE PRESENT INVENTION

The Examiner's Answer provides, for the first time, comments relating to particular compositions illustrated by example in Willey. The Examiner sets forth Willey Examples 10 and 11 as support for the Examiner's interpretation of the Willey reference as teaching a selection of ingredients that achieve in situ generation of hypohalite according to the present invention, thereby contradicting Appellants' rebuttal contention that Willey teaches away from the instantly inventive compositions because Willey teaches away from a selection of ingredients that would effectuate generation of hypohalite in solution.

As noted by the Examiner, where certain oxidants and a suitable halide source are present together in solution under appropriate conditions, a hypohalite can be generated in situ. A point of contention between the Examiner and Appellants is whether Willey makes obvious the selection of ingredients and solution parameters that achieve in situ generation of a hypohalite in accordance with the selection criteria and solution parameters instantly claimed. While the Examiner previously buttressed his contention that Willey teaches potential selection of hypochlorite as a composition ingredient by reference to Willey paragraphs [0314], [0327], and [0303], the Examiner's Answer now relies additionally on Willey Examples 10 and 11 for support of this interpretation.

However, the Examiner's interpretation of Examples 10 and 11 as illustrating compositions comprising ingredients which generate hypochlorite is scientifically flawed and Appellants submit that all the Willey examples, taken as a whole, actually evidence Appellants' interpretation that Willey expressly prohibits and teaches away from inclusion of a hypohalite ingredient or, by extension, a selection of ingredients that would generate a hypohalite in solution.

As discussed in detail in Appellants' Appeal Brief, the inventive compositions defined by instant independent claim 8 comprises one or more oxidants selected from a Markush listing and present within a recited concentration range, at least one halide selected from the group consisting of an alkali metal and an alkaline earth or transition metal halide salt, present within a recited concentration range, and a specified buffer capable of bringing the composition up to a pH of about 4 to about 10, present within a recited concentration range, and water. The inventive compositions defined by independent claim 21 are generally similar, but broader with respect to buffer ingredients and defined in part by the selection protocol recitation that the oxidants, halides and buffers are present in sufficient amounts to generate hypochlorite species in solution. Importantly, this latter limitation of independent

claim 21 is not meant to imply that generation of hypohalite does not occur in the compositions according to claim 8, but is an express narrowing of the hypohalite genus.

Examples 10 and 11, now relied upon by the Examiner, are set forth in Willey as "compositions according to this invention," and include a list of 17 possible ingredients, along with fillers. The Examiner points specifically to the oxidant "sodium perborate," and "a chloride source, alkyl dimethyl ammonium chloride," and notes that "this chloride is not bonded to the ammonium group," and asserts that "it is as free to react with perborate, generating hypochlorite, as would be the chloride in sodium chloride." Appellants submit that this statement is chemically unsound. It is commonly known in the chemical arts that hypochlorite is a species that reacts readily with organic compounds. It is highly unlikely, therefore, that Willey would intend the generation of hypochlorite in composition Examples 10 and 11 (or any of the other ten exemplary compositions), all of which include many potentially reactive organic compounds (see [0358], listing soil release polymers, proteases such as Savinase, and other enzymes). Moreover, the compositions of Examples 10 and 11 contain numerous cationic and anionic species whereby, in order to establish formation of any particular product, one would have to calculate and prioritize the governing thermodynamic and entropic characteristics of each potential interaction.

The Examiner's contention that a chloride "is as free" to react with a perborate to generate hypochlorite, as would be the chloride in sodium chloride, is absurd. First, the dissociation constant between the ions of any two ionic compounds is not equivalent and, generally speaking, one would predict a tremendous difference in dissociation chemistry between these two compounds since one includes a small cation (sodium) and one includes a large less soluble organic species (alkyl dimethyl ammonium). Second, the Examiner ignores knowledge common to the art that perborate is often used to stabilize chlorine in solution (for example, in modern water chlorination), wherein perborate acts to form highly stable

chloroxides rather than, for example, the unstable hypochlorite species. Third, reaction conditions and presence of other ions in solution will determine the favorability of any potential reaction, and the Examiner ignores that these particular compositions, according to Willey, are designed so that the perborate, an oxidizing agent, will combine with the bleach activator (page 20, column 1, see ingredient listed immediately below sodium perborate - "nonanoyloxbenzenesulfonate," which is disclosed by Willey as the "highly preferred" bleach activator for, inter alia, the perborate bleaching agent ([0319]-[0322])), to achieve the *in situ* production in aqueous solution of the peroxy acid ([0319]). Indeed, the Examiner contradicts the supposition of his own argument by noting that "a 'bleach activator' is a compound which reacts with oxygen bleaches to generate an active peroxyacid bleaching species, not a hypohalite" (Examiner's Answer, page 5, lines 10-13). Hence, the bleach activator of Examples 10 and 11 will react with the perborate to generate the peroxy acid, as contemplated by Willey as the desired reaction, and generation of the unstable and reactive hypohalite (hypochlorite) is not desired or contemplated to occur and will not occur given this combination of ingredients.

Appellants submit that Examples 10 and 11 actually evidence Appellants' contention that paragraph [0314] of Willey is an express teaching away from the inclusion of any hypohalite, including hypochlorite, in the Willey compositions. As noted above, a person of ordinary skill in the art recognizes that chlorates are very strong oxidizing agents, and that hypochlorite is a highly unstable species. The reaction of the chlorate with an organic compound is highly exothermic, and may lead to ignition. This is why hypochlorite is handled with care, and one reason why the present invention is designed for its *in situ* production (see, e.g. instant specification [0015]).

The compositions of Willey, both as described generally and as exemplified in all of the ten illustrative compositions, contain many organic phthalocyanines. In fact, the Willey

invention is directed specifically to photobleaching compositions comprising novel organotin, organogermanium, organoplatinum, organopalladium, organolead or organophosphorous photosensitizing compounds ([0001]). A person of ordinary skill in the art, therefore, would understand the Willey disclosure in [0314]:

The bleaching agents used herein can be any of the bleaching agents useful for detergent compositions in textile cleaning, hard surface cleaning, or other cleaning purposes that are now known or become known. These include oxygen bleaches other than the hypohalite (e.g. hypochlorite) bleaches. (emphasis added)

as intending to exclude hypohalite from the Willey compositions, as argued by Appellants, and not to mean "in addition to" as argued by the Examiner.

Hence, Appellants reiterate their position that the prima facie case asserted by the Examiner with respect to the Willey reference, is effectively rebutted by Willey's unequivocal teaching away from the present invention, which requires ingredients selected to achieve the in situ generation of hypohalite, e.g. hypochlorite.

II. THE EXAMINER HAS NOT ESTABLISHED OBVIOUSNESS OF THE COMPOSITIONS DEFINED BY EITHER INSTANT INDEPENDENT CLAIM

Further in his Answer, the Examiner contends that "generation of hypohalite is only recited in claim 21, which Appellant has not argued separately" (page 5, last sentence). Appellants draw attention to the specific recitation found in the last sentence of independent claim 21, which requires that the oxidants, halides and buffers be present in sufficient amounts to generate *hypochlorite* species in solution. The composition according to claim 1, on the other hand, while not defined according to intended function, is contemplated with respect to the selected ingredients and designated conditions and in accordance with the teachings throughout the specification, as being capable of generating a *hypohalite* species in solution. The functional limitation of claim 21 is with respect to hypohalite species, not the

capability for generation of a hypohalite per se. The asserted reference fails to teach or suggest any compositions having the specific oxidant, halide and buffer ingredients according to claims 8 or 21, capable, as are the compositions of both claims 8 and 21, of generating a hypohalite in solution.

The prima facie case on the basis of Willey is asserted against all the instant claims. Willey teaches away from the instantly inventive compositions, by excluding *hypohalites*, as a broad class, from the Willey compositions [0314], whereas the instant compositions are formulated to specifically to generate a hypohalite species in solution under noncorrosive conditions.

III. CONCLUSION

For the reasons set forth in detail above and in view of the arguments set forth in the Amended Appeal Brief filed by certificate of transmission on July 9, 2007, the compositions defined by claims 8, 10, 12-14, 21- 23, 25-27, 34-36, and 38-40, are nonobvious over and patentably distinguishable from Willey. Accordingly, the rejections of the claims under 35 U.S.C. §103 should be reversed. Favorable action by the Board is respectfully requested.

Respectfully submitted,

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